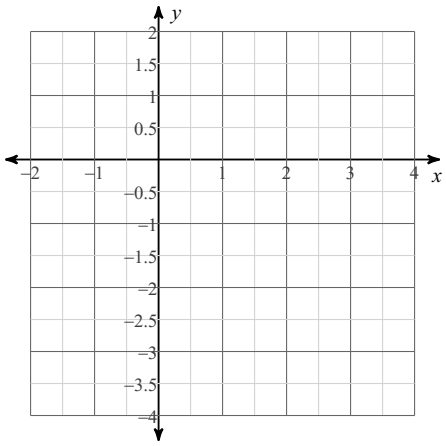
Algebra 2 Name_____ ID: 1

Unit 2 Review

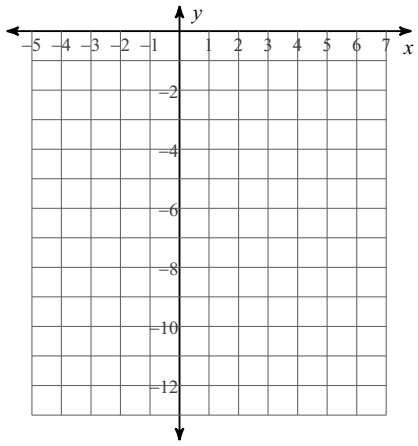
Date_____ Period____

Graph each function. Find the vertex, axis of symmetry, y intercept and at least two other points.

1) $y = x^2 - 2x - 2$

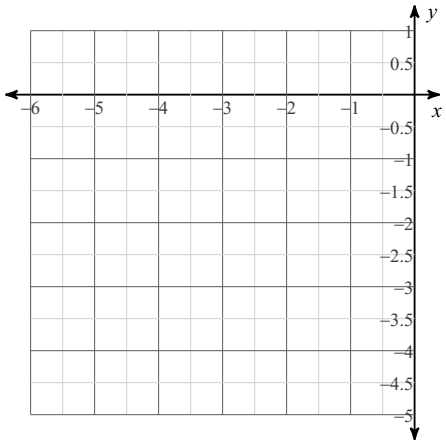


2) $y = -2x^2 - 8x - 12$

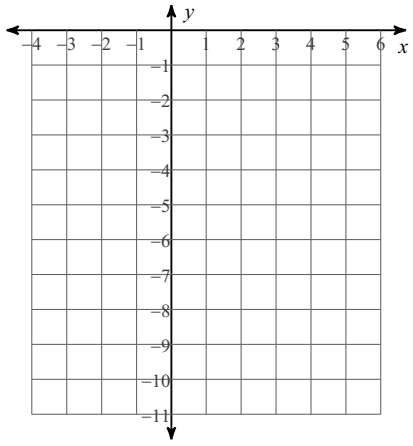


Graph each function. Find the vertex, axis of symmetry, y intercept and x intercepts (if they exist).

3) $y = (x + 3)^2 - 4$



4) $y = -2(x + 2)^2 - 2$



Solve each equation by factoring.

5) $v^2 - v - 6 = 0$

6) $x^2 = -8x - 15$

7) $v^2 = -16 + 10v$

8) $v^2 + 2v = 0$

9) $4x^2 - 17x + 4 = 0$

10) $5x^2 + 3x - 6 = -4$

11) $4n^2 - 4n = 24$

12) $2m^2 - 7m - 49 = 0$

Solve each equation by taking square roots.

13) $p^2 - 3 = 97$

14) $v^2 + 4 = -4$

15) $4n^2 + 5 = -11$

16) Write a quadratic equation in vertex form that has vertex of (2,-3) and passes through (3,-1).

Find the discriminant of each quadratic equation then state the number and type of solutions.

17) $5x^2 - 10x + 10 = 5$

18) $6x^2 - 10x + 16 = 9$

Solve each equation by completing the square.

19) $n^2 - 8n - 64 = 6$

20) $n^2 - 10n + 33 = -5$

21) $n^2 - 14n + 37 = -3$

22) $b^2 + 20b - 22 = -7$

Solve each equation with the quadratic formula.

23) $6a^2 - 14 = 4a$

24) $5x^2 + 2x = -3$

25) $7k^2 = -3k - 2$

26) $3x^2 - 50 = -5x$

Simplify.

27) $\sqrt{-196}$

28) $\sqrt{-128}$

29) $(-8 - 6i) - (-2 - 2i)$

30) $(-6 - 8i) + (1 - 4i)$

31) $(8i)(1 + 7i) - 6 \cdot (5i)$

32) $(-4 + 5i)(7 - 7i)$

33) $(-1 + 2i)(-8 + 8i)$

34) $(8 + 4i)(-6 - 4i)$

35) $(8i)(8 - 5i) + (6i)(7 - 2i)$

36) $(6i)(-4i) - 6(6 + 4i)$

37) $\dfrac{10 + 8i}{10 - 6i}$

38) $\dfrac{6}{4 - 6i}$

39) Write a quadratic equation in standard form that has roots of $\frac{1}{2}$ and 4.

40) The equation $h(t) = -16t^2 + 20t + 26$ describes the height h of a diver in feet, t seconds after jumping off a cliff. What is the maximum height of the diver?

When does the diver hit the water?